diseased tissues, one may assume with probability bordering on certainty that *spirochæte pallida* is the cause of syphilis in man and of experimental syphilis in monkeys."

Recent Advances in Our Knowledge of the Metabolism of the Purin Bodies.—Investigations of a recent date have developed the fact that specific organic ferments play a most important part in the metabolism of uric acid and the other purin bodies—adenin, guanin, hypoxanthin, and xanthin. We have known for a number of years that all five are the product of nuclein disintegration, but not until the publication of recent researches have we known where the various purin bodies are formed or how one becomes transformed into another.

The work of Jones and his associates, Partridge and Winternitz, in this country, and of Schittenhelm and Burian in Germany have shown that specific organic ferments play a vital part in the various stages in the formation of uric acid.

Thus, JONES and PARTRIDGE (*Zeitschrift für physiologisch Chem.*, Bd. xlii. p. 343) demonstrated that the thymus and adrenals contain an enzyme, guanase, which has the power of hydrolizing guanin into xanthin. This ferment is not contained in the spleen.

Subsequently, JONES and WINTERNITZ (*Ibid.*, Bd. xliv. p. 1) showed that the thymus, adrenals, pancreas, and liver contain another enzyme, adenase, which is capable of hydrolizing adenin into hypoxanthin.

Further, SCHITTENHELM (*Ibid.*, Bd. xlii. p. 251; Bd. xliii. p. 228) demonstrated that the liver, lungs, spleen, and muscles contain a ferment which oxidizes xanthin into uric acid. He finds that it is not contained in the thymus, intestines, blood, or kidneys. Burian has given this ferment the name "xanthin oxidase."

Another important fact has been demonstrated, namely, the existence of a specific intracellular enzyme called nuclease, which has the power of liberating the purin bases from their combinations as component parts of ingested or tissue nucleoproteids, or more particularly from their contained nucleic acid. Thus, after the purin bases guanin, adenin, hypoxanthin, and xanthin have been set free by the nuclease, the ferments guanase, adenase, and xanthin-oxidase are enabled to act on them and by hydrolysis and oxidation to convert them step by step into uric acid. Schittenhelm has also shown that there is still another tissue, oxidase, present in the kidneys, liver, muscles, and possibly the bone-marrow, which has the power of further oxidizing uric acid and consequently destroying it.

BEEBE (*American Journal of Physiology*, vol. xii. p. 13) has demonstrated that in man the ingestion of alcoholic fluids with purin containing foods increases at once the output of uric acid in the urine. Alcohol, however, does not produce the result when taken with a light diet or one free from purin compounds. In other words, alcohol influences only the uric acid of exogenous origin in conformity with the well-known gouty tendencies of high proteid feeding combined with the consumption of alcoholic fluids.

CHITTENDEN (*Boston Medical and Surgical Journal*, August 17, 1905, p. 179) points out that alcohol is well known to interfere with the oxidative processes of the liver, and it is more than probable that its influence on the uric-acid content of the blood lies in the direction of inhibiting the action of the oxidase which, present in the liver and other tissues, normally destroys or oxidizes a certain proportion of the uric acid formed.

The important part these various enzymes have been shown to play in the intermediary metabolism of the nucleoproteids offers us some hope that we may eventually reach a satisfactory explanation of the metabolic disturbances causing gout.

SURGERY.

UNDER THE CHARGE OF

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Subdiaphragmatic Transperitoneal Massage of the Heart as a Means of Resuscitation.—GRAY (*Lancet*, August 19, 1905) records a case of apparent death from laryngeal obstruction due to cancer, in which resuscitation by the above method was accomplished. While the patient was still making a feeble, choky inspiratory effort, the writer performed a high tracheotomy with a penknife, the lips of the wound being retracted by bent hairpins. Artificial respiration was of no avail. The pulse and cardiac impulse stopped. She was pallid and all reflexes had disappeared. The pupils were widely dilated, the muscles absolutely flaccid, the lips pale, and the eyes rapidly assumed a "glassy" look. Various methods of resuscitation, including attempted external massage of the heart, were carried out, but all to no purpose.

Upon opening the abdomen with a penknife, the heart was compressed between two fingers introduced under the diaphragm and the ribs in front. Massage by the intermittent method was carried out for four minutes, when the heart showed signs of life: first by an increasing firmness, then a slight tremor, and soon a rhythmic beating (30 to 40 a minute) was present. The patient lived for fifteen hours afterward. Probably at least ten minutes elapsed between the times when the heart stopped beating and when it began again.

Two Cases of Glanders.—GOODALL (*Lancet*, August 26, 1905) lays particular stress on the diagnosis. Each was sent to the hospital as a case of typhoid fever, which, he thinks, was unjustifiable in both instances. The periostitis and intramuscular abscesses of the first case are rare in the acute stage of typhoid fever. The second case simulated acute rheumatism very closely. Arthritis is very rare in typhoid fever. The man's occupation, stableman, suggested glanders, and hence a bacteriological examination was made. Toward the termination of